

[Designation of Document] Claims

[Claim 1]

A clock characterized by including:

a clock drive part having a clock circuit which forms a clock signal corresponding to time, and a rotation output mechanism which outputs rotational motion synchronized with the clock signal;

a first motion converting mechanism which converts the rotational motion which the clock drive part outputs into a mode of motion other than the rotational motion; and

a time display part which displays time correspondingly to the motion mode of the first motion converting mechanism.

[Claim 2]

A. clock characterized by including:

a clock drive part having a clock circuit which forms a clock signal corresponding to time, and a rotation output mechanism which outputs rotational motion synchronized with the clock signal;

a first motion converting mechanism which converts the rotational motion which the clock drive part outputs into a mode of another motion than the rotational motion;

a second motion converting mechanism which converts the motion mode of the first motion converting mechanism into the predetermined rotational motion or rotational motion different from this rotational motion; and

a time display part which displays time correspondingly to the rotational motion outputted by the second motion converting mechanism.

[Claim 3]

The clock according to Claim 2, wherein

the first motion converting mechanism is constituted by a dead-weight lifting mechanism which lifts periodically, on the basis of the rotational motion outputted by the clock drive part, a dead-weight body from a lower position to an upper position; and

the second motion converting mechanism is constituted by a rotation wheel which is rotation-driven on reception of the dead-weight body supplied from the dead-weight body lifting mechanism.

[Claim 4]

The clock according to Claim 3, wherein the rotational motion outputted by the second converting mechanism is intermittent rotation motion.

[Claim 5]

The clock according to Claim 3 or 4, wherein

the rotation wheel has plural reception parts for receiving the dead-weight body at its periphery; and

the dead-weight lifting mechanism is so constructed as to supply the dead-weight body to the upper reception part, and return, after the rotation wheel has hereby rotated by

the predetermined angle, the dead-weight body exhausted from the reception part to the lower position.

[Claim 6]

The clock according to Claim 2, wherein the clock drive part is, viewed from the front side of the time display part, arranged behind any one of the first motion converting mechanism, the second motion converting mechanism and the clock display part.

[Claim 7]

A clock comprising a dead-weight body, a dead-weight lifting means for lifting the dead-weight body supplied to a lower position to an upper position, a rotation wheel having, at its periphery, plural reception parts capable of holding the dead-weight body, and an escapement mechanism which operates the rotation wheel intermittently, characterized by being constructed so as to supply the dead-weight body lifted by the dead-weight lifting means to the upper position to the upper reception part, and return, after the rotation wheel has hereby rotated by the predetermined angle, the dead-weight body exhausted from the reception part to the lower position.

[Claim 8]

The clock according to Claim 7, wherein the dead-weight lifting means includes a dead-weight lifting mechanism having a drive body provided with a spiral drive surface having a

horizontal or inclined axis, and a rotation drive source which rotation-drives the drive body around the axis, and is constructed so that the dead-weight body is driven on the drive surface by rotation of the drive body to be translated from the lower position to the upper position.

[Claim 9]

The clock according to Claim 8, wherein the dead-weight lifting means has a guide means for guiding the dead-weight body upward.

[Claim 10]

The clock according to Claim 9, wherein the dead-weight body moves upward while rolling on the drive surface.

[Claim 11]

The clock according to any one of Claims 8 to 10, wherein the dead-weight body is a columnar body, a cylindrical body, or a spherical body.

[Claim 12]

The clock according to any one of Claims 8 to 10, wherein an axis of the drive body is set horizontally.

[Claim 13]

The clock according to Claim 8, wherein
the drive body has a pair of spiral strip materials arranged in the axial direction in a row, surfaces of which constitute the drive surfaces; and

the drive body further has holding frames for holding

the dead-weight body, which are arranged on both sides in the axial direction of the spiral strip material pair, and a guide member which is arranged between the spiral strip material pair and has a guide edge extending in a radius direction of the spiral strip material.

[Claim 14]

The clock according to Claim 8, wherein

the drive body has a pair of plane-viewed spiral plate-shaped materials, which are arranged in the axial direction in a row, and constitute the drive surface by its end edge; and

the drive body further has holding frames for holding the dead-weight body, which are arranged on both sides in the axial direction of the plate-shaped material pair, and a guide member which is arranged between the plate-shaped material pair and has a guide edge extending in a radius direction of the plate-shaped material.

[Claim 15]

The clock according to any one of Claims 7 to 9, 13 and 14, wherein the reception part has the shape of a container having an opening part which opens continuously from the reverse side to the rotational direction to the peripheral side.

[Claim 16]

The clock according to Claim 15, wherein an inclined

surface which upward inclines toward an opening edge on the peripheral side of the opening part is formed on the peripheral side of a bottom surface of the reception part.

[Claim 17]

The clock according to Claim 15, wherein a protruding part is provided for a peripheral edge of the bottom surface of the reception part.

[Claim 18]

The clock according to any one of Claims 7 to 9, 13 and 14, wherein

the escapement mechanism comprises plural fitting parts provided on the rotation wheel in the rotational direction; a first lever which is constructed fittably to the fitting part throughout a range of the predetermined angle of the rotation wheel, and supported so as to turn accordingly to forward rotation of the rotation wheel in a fitting state to the fitting part; a second lever which is supported turnably between a fitting posture capable of fitting to the fitting part and a non-fitting posture incapable of fitting to the fitting part, and fits the fitting part in the fitting posture thereby to enable stop of the forward rotation of the rotation wheel; and a third lever which can switch the fitting posture and the non-fitting posture of the second lever in cooperation with the first lever; and

the escapement mechanism is constructed such that: in

a basic stop position of the rotation wheel, the second lever is in the fitting posture, and the rotation wheel can rotate forward till the fitting part fits the second lever 2;

when the rotation wheel starts rotating forward from the basic stop position, before the fitting part fits the second lever, the first lever turns by the fitting part, the third lever turns in cooperation with the first lever, and the second lever is temporarily put in the non-fitting posture by the third lever;

thereafter, when the rotation wheel further rotates forward, the first lever further turns, whereby the fitting part gets beyond the second lever, and thereafter the third lever returns the second lever to the fitting posture; and

thereafter, the first lever separates from the fitting part and returns to the original posture.